

10/589233

IAP11 Rec'd PCT/PTO 10 AUG 2006

STERN29.002APC SEQLIST.TXT

SEQUENCE LISTING

<110> Giannotta, Fabrizio
Filee, Patrice
Galleni, Moreno
Frere, Jean-Marie
Joris, Bernard
Brans, Alain
Ruth, Nadia

<120> HYBRID PROTEINS OF ACTIVE-SITE SERINE
BETA-LACTAMASE

<130> STERN29.002APC

<150> PCT/EP2005/050174
<151> 2005-01-17

<150> EP 04075430.1
<151> 2001-02-11

<160> 68

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 858
<212> DNA
<213> Escherichia coli

<400> 1
ccaatgctta atcagtgagg cacctatctc agcgatctgt ctatttcgtt catccatagt 60
tgcctgactc cccgtcggtg agataactac gatacgggag ggcttaccat ctggccccag 120
tgctgcattg ataccgcgag acccacgctc accggctcca gatttacatca caataaaacca 180
gccagccgga agggcccggc gcagaagtgg tcctgcact ttatccgcct ccatccagtc 240
tattaattgt tgccgggaag cttagatgg tagttcggca gttaatagtt tgcgcacagt 300
tgttgcatt gctgcaggca tcgtgggtgc acgctcgctg tttggatgg cttcattcag 360
ctccggttcc caacgatcaa ggcgagttac atgatcccc atgttgcataaaaaagcggt 420
tagctcccttc ggtcctccga tcgttgcag aagtaagttt gccgcagtgt tatcactcat 480
ggttatggca gcactgcata attctttac tgtcatggca tccgtaagat gctttctgt 540
gactggtag tactcaacca agtcattctg agaatagttt atgcggcgcac cgagttgc 600
ttgcccggcg tcaacacggg ataataccgc gccacatagc agaactttaa aagtgcctat 660
cattggaaaa cgttcttcgg ggcggaaaact ctcaaggatc ttaccgctgt tgagatccag 720
ttcgatgtaa cccactcggt caccggactg atcttcggca tctttactt tcaccagcgt 780
ttctgggtga gcaaaaacag gaaggcaaaa tgccgcaaaa aaggaaataa gggcgacacg 840
gaaatgttga atactcat 858

<210> 2
<211> 921
<212> DNA
<213> Bacillus licheniformis

<400> 2
atgaaattat gtttcgtac tttaaaactg aaaaaggctg cagcagtgtt gctttctct 60
tgcgtcgcc ttgcaggatg cgctaacaat caaacgaatg cctcgcaacc tgccgagaag 120
aatgaaaaga cggagatgaa agatgatttt gcaaaacttg aggaacaatt tgatgcaaaa 180
ctcggatct ttgcattgga tacaggtaca aaccggacgg tagcgtatcg gccggatgag 240
cgtttgctt ttgcattcgac gattaaggct ttaactgttag gcgtgcttt gcaacagaaa 300
tcaatagaag atctgaacca gagaataaca tatacacgtg atgatcttgc aaactacaac 360
ccgattacgg aaaagcacgt tgatacggga atgacgcgtca aagagcttgc ggatgcttcg 420
cttcgatata gtgacaatgc ggcacagaat ctcattctt aacaaattgg cggacctgaa 480
agtttggaaaa aggaactgttag gaagattggt gatgaggtt caaatcccgaa acgattcgaa 540

STERN29.002APC SEQLIST.TXT

ccagagttaa	atgaagtcaa	tccgggtgaa	actcaggata	ccagtacagc	aagagcaactt	600
gtcacaagcc	ttcgagcctt	tgctcttgaa	gataaacttc	caagtaaaa	acgcgagctt	660
ttaatcgatt	ggatgaaacg	aaataccact	ggagacgcct	taatccgtgc	cggtgtgccg	720
gacggttggg	aagtggctga	taaaactgga	gcggcatcat	atggAACCCG	aatgacatt	780
gccatcattt	ggccgcacaa	aggagatcct	gtcggttctt	cagtattatc	cagcaggat	840
aaaaggacg	ccaagtatga	tgataaactt	attgcagagg	caacaaaggt	ggtaatgaaa	900
gccttaaaca	tgaacggcaa	a				921

<210> 3

<211> 975

<212> DNA

<213> Streptomyces cacaoi

<400> 3

atgcgtatcc	gtcccacccg	tcgtcttctc	ctcgccgccc	tcgcgcgc	cggccctcg	60
ccgctgggtgg	cctcggtca	ggcgctgggc	tccgagagcg	gccagcagcc	cgccctcg	120
gggtgcggga	cgagcgacca	cggtcgccg	gacgcccacg	agaaggagtt	cgggcgctg	180
gagaagaagt	tcgacgcccc	ccctggcg	tacggccatcg	acacccgcga	cgccaggag	240
atcacccacc	ggccgcacga	gcccgc	tacggctcg	ccttcaaggc	cctccaggcg	300
ggcgcgatcc	ttgcgcaagt	tctccgagac	gggcgcgaag	tccggcg	cgccgaggcc	360
gacggcatgg	acaaggatgt	ccactacggg	caggacgcga	tccgtccccaa	ctcaccgg	420
accgagaagg	acgtcgccg	cggcatgtcc	ctgcgcg	tgtgcacgc	cgtcgtgg	480
tacagcgaca	acaccgcggc	caacctgctc	ttcgacc	tcggcg	aaggggctca	540
acgcgggtcc	tcaaggcagct	cggcgaccac	accacgagca	tggaccgcta	cgagcaggag	600
ctgggctcg	ccgtccccgg	cgaccccccgg	gacaccagca	cgccgcgc	gttcgcgag	660
gacgtcgccg	ccttcgcgt	cgaggacggc	gagaaggccg	ccctcgcc	caacgaccgc	720
gagcagctga	acgactggat	gagcgggagc	aggaccggcg	acgcgtat	cgggccgg	780
gtgccaagg	actgaaagt	ggagacaag	agcggccagg	tcaagtacgg	caccggaaac	840
gacatcgccg	tcgtccgccc	gcccggccgc	gcccgc	tcgtctcg	gatgagccac	900
ggcgacaccc	aggacgccc	gccgcacgac	gagctgg	ccgaggccgg	cctcg	960
ggcgacggc	tgaag					975

<210> 4

<211> 286

<212> PRT

<213> Escherichia coli

<400> 4

Met Ser Ile Gln His Phe Arg Val Ala Leu Ile Pro Phe Phe Ala Ala						
1	5	10	15			
Phe Cys Leu Pro Val Phe Ala His Pro Glu Thr Leu Val Lys Val Lys						
20	25	30				
Asp Ala Glu Asp Gln Leu Gly Ala Arg Val Gly Tyr Ile Glu Leu Asp						
35	40	45				
Leu Asn Ser Gly Ile Leu Glu Ser Phe Arg Pro Glu Glu Arg Phe						
50	55	60				
Pro Met Met Ser Thr Phe Lys Val Leu Leu Cys Gly Ala Val Leu Ser						
65	70	75	80			
Arg Val Asp Ala Gly Gln Glu Gln Leu Gly Arg Arg Ile His Tyr Ser						
85	90	95				
Gln Asn Asp Leu Val Glu Tyr Ser Pro Val Thr Glu Lys His Leu Thr						
100	105	110				
Asp Gly Met Thr Val Arg Glu Leu Cys Ser Ala Ala Ile Thr Met Ser						
115	120	125				
Asp Asn Thr Ala Ala Asn Leu Leu Leu Thr Thr Ile Gly Gly Pro Lys						
130	135	140				
Glu Leu Thr Ala Phe Leu His Asn Met Gly Asp His Val Thr Arg Leu						
145	150	155	160			
Asp Arg Trp Glu Pro Glu Leu Asn Glu Ala Ile Pro Asn Asp Glu Arg						
165	170	175				
Asp Thr Thr Met Pro Ala Ala Met Ala Thr Thr Leu Arg Lys Leu Leu						
180	185	190				
Thr Gly Glu Leu Leu Thr Leu Ala Ser Arg Gln Gln Leu Ile Asp Trp						

STERN29.002APC SEQLIST.TXT

195	200	205
Met Glu Ala Asp Lys Val Ala Gly Pro Leu Leu Arg Ser Ala Leu Pro		
210	215	220
Ala Gly Trp Phe Ile Ala Asp Lys Ser Gly Ala Gly Glu Arg Gly Ser		
225	230	235
Arg Gly Ile Ile Ala Ala Leu Gly Pro Asp Gly Lys Pro Ser Arg Ile		240
245	250	255
Val Val Ile Tyr Thr Thr Gly Ser Gln Ala Thr Met Asp Glu Arg Asn		
260	265	270
Arg Gln Ile Ala Glu Ile Gly Ala Ser Leu Ile Lys His Trp		
275	280	285

<210> 5
<211> 307

<212> PRT

<213> *Bacillus licheniformis*

<400> 5		
Met Lys Leu Trp Phe Ser Thr Leu Lys Leu Lys Lys Ala Ala Ala Val		
1	5	10
Leu Leu Phe Ser Cys Val Ala Leu Ala Gly Cys Ala Asn Asn Gln Thr		
20	25	30
Asn Ala Ser Gln Pro Ala Glu Lys Asn Glu Lys Thr Glu Met Lys Asp		
35	40	45
Asp Phe Ala Lys Leu Glu Glu Gln Phe Asp Ala Lys Leu Gly Ile Phe		
50	55	60
Ala Leu Asp Thr Gly Thr Asn Arg Thr Val Ala Tyr Arg Pro Asp Glu		
65	70	75
Arg Phe Ala Phe Ala Ser Thr Ile Lys Ala Leu Thr Val Gly Val Leu		80
85	90	95
Leu Gln Gln Lys Ser Ile Glu Asp Leu Asn Gln Arg Ile Thr Tyr Thr		
100	105	110
Arg Asp Asp Leu Val Asn Tyr Asn Pro Ile Thr Glu Lys His Val Asp		
115	120	125
Thr Gly Met Thr Leu Lys Glu Leu Ala Asp Ala Ser Leu Arg Tyr Ser		
130	135	140
Asp Asn Ala Ala Gln Asn Leu Ile Leu Lys Gln Ile Gly Gly Pro Glu		
145	150	155
Ser Leu Lys Lys Glu Leu Arg Lys Ile Gly Asp Glu Val Thr Asn Pro		160
165	170	175
Glu Arg Phe Glu Pro Glu Leu Asn Glu Val Asn Pro Gly Glu Thr Gln		
180	185	190
Asp Thr Ser Thr Ala Arg Ala Leu Val Thr Ser Leu Arg Ala Phe Ala		
195	200	205
Leu Glu Asp Lys Leu Pro Ser Glu Lys Arg Glu Leu Leu Ile Asp Trp		
210	215	220
Met Lys Arg Asn Thr Thr Gly Asp Ala Leu Ile Arg Ala Gly Val Pro		
225	230	235
Asp Gly Trp Glu Val Ala Asp Lys Thr Gly Ala Ala Ser Tyr Gly Thr		240
245	250	255
Arg Asn Asp Ile Ala Ile Ile Trp Pro Pro Lys Gly Asp Pro Val Val		
260	265	270
Leu Ala Val Leu Ser Ser Arg Asp Lys Lys Asp Ala Lys Tyr Asp Asp		
275	280	285
Lys Leu Ile Ala Glu Ala Thr Lys Val Val Met Lys Ala Leu Asn Met		
290	295	300
Asn Gly Lys		
305		

<210> 6
<211> 325

STERN29.002APC SEQLIST.TXT

<212> PRT

<213> Streptomyces cacaoi

<400> 6

Met Arg Ile Arg Pro Thr Arg Arg Leu Leu Leu Gly Ala Val Ala Pro
 1 5 10 15
 Leu Ala Leu Val Pro Leu Val Ala Cys Gly Gln Ala Ser Gly Ser Glu
 20 25 30
 Ser Gly Gln Gln Pro Gly Leu Gly Gly Cys Gly Thr Ser Ala His Gly
 35 40 45
 Ser Ala Asp Ala His Glu Lys Glu Phe Arg Ala Leu Glu Lys Lys Phe
 50 55 60
 Asp Ala His Pro Gly Val Tyr Ala Ile Asp Thr Arg Asp Gly Gln Glu
 65 70 75 80
 Ile Thr His Arg Ala Asp Glu Arg Phe Ala Tyr Gly Ser Thr Phe Lys
 85 90 95
 Ala Leu Gln Ala Gly Ala Ile Leu Ala Gln Val Leu Arg Asp Gly Arg
 100 105 110
 Glu Val Arg Arg Gly Ala Glu Ala Asp Gly Met Asp Lys Val Val His
 115 120 125
 Tyr Gly Gln Asp Ala Ile Leu Pro Asn Ser Pro Val Thr Glu Lys His
 130 135 140
 Val Ala Asp Gly Met Ser Leu Arg Glu Leu Cys Asp Ala Val Val Ala
 145 150 155 160
 Tyr Ser Asp Asn Thr Ala Ala Asn Leu Leu Phe Asp Gln Leu Gly Gly
 165 170 175
 Arg Arg Gly Ser Thr Arg Val Leu Lys Gln Leu Gly Asp His Thr Thr
 180 185 190
 Ser Met Asp Arg Tyr Glu Gln Glu Leu Gly Ser Ala Val Pro Gly Asp
 195 200 205
 Pro Arg Asp Thr Ser Thr Pro Arg Ala Phe Ala Glu Asp Leu Arg Ala
 210 215 220
 Phe Ala Val Glu Asp Gly Glu Lys Ala Ala Leu Ala Pro Asn Asp Arg
 225 230 235 240
 Glu Gln Leu Asn Asp Trp Met Ser Gly Ser Arg Thr Gly Asp Ala Leu
 245 250 255
 Ile Arg Ala Gly Val Pro Lys Asp Trp Lys Val Glu Asp Lys Ser Gly
 260 265 270
 Gln Val Lys Tyr Gly Thr Arg Asn Asp Ile Ala Val Val Arg Pro Pro
 275 280 285
 Gly Arg Ala Pro Ile Val Val Ser Val Met Ser His Gly Asp Thr Gln
 290 295 300
 Asp Ala Glu Pro His Asp Glu Leu Val Ala Glu Ala Gly Leu Val Val
 305 310 315 320
 Ala Asp Gly Leu Lys
 325

<210> 7

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic primer

<400> 7

tcagttaca atttcaacaa agaacaacaa aatgct

36

<210> 8

<211> 30

<212> DNA

<213> Artificial Sequence

STERN29.002APC SEQLIST.TXT

<220>		
<223> synthetic primer		
<400> 8		
tcgaaatttt ttgttgtctt cctctttgg		30
<210> 9		
<211> 33		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> synthetic primer		
<400> 9		
catatgaaaa agaaaaacat ttattcaatt cgt		33
<210> 10		
<211> 33		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> synthetic primer		
<400> 10		
ggatccttat agttcgcgac gacgtccagc taa		33
<210> 11		
<211> 32		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> synthetic primer		
<400> 11		
cgggagctca ggctcaccca gaaacgctgg tg		32
<210> 12		
<211> 36		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> synthetic primer		
<400> 12		
cgggaattct caccaatgct taatcagtga ggcacc		36
<210> 13		
<211> 39		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> synthetic primer		
<400> 13		
ggctgtactt acaaattaat ccttaatggt aaaacattg		39
<210> 14		

STERN29.002APC SEQLIST.TXT

<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic primer

<400> 14
ctctcttca gttaccgtaa aggtcttagt cgc 33

<210> 15
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic primer

<400> 15
aggttttatc catacgacgt cccggactac gccacaact 39

<210> 16
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic primer

<400> 16
agttgtggcg tagtccggga cgtcgatgg ataaaacct 39

<210> 17
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic primer

<400> 17
ctcgagaaaa gaaatttggt gaatttccac 30

<210> 18
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic primer

<400> 18
gcaacgtgga gtgctccctc tgcagtgtt 30

<210> 19
<211> 90
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic primer

<400> 19

STERN29.002APC SEQLIST.TXT

ccgatcatca aacttctcaa gctgcttaaa ctcctgcgcc ggaaacttct caagctgctt 60
aaactcctgc cgatcaggga gtttaagcag 90

<210> 20

<211> 90

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic primer

<400> 20

ctgcttaaac tcctgatccg gcaggagttt aagcagctt agaagttcc ggcgcaggag 60
ttttagcagc ttgagaagtt tgatgatcgg 90

<210> 21

<211> 54

<212> DNA

<213> Escherichia coli

<400> 21

aacacgtttt actgctgcga actttgctgc aaccaggcat gcgcaggttt ctac 54

<210> 22

<211> 18

<212> PRT

<213> Escherichia coli

<400> 22

Asn Thr Phe Tyr Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Ala Gly

1 5 10 15

Cys Tyr

<210> 23

<211> 201

<212> DNA

<213> Staphylococcus aureus

<400> 23

tcagtgaaca atttcaacaa agaacaacaa aatgcttct atgaaatttt acatttacct 60

aacttaactg aagaacaacg taacggcttc atccaaagcc ttaaagacga tccttcagtg 120

agcaaagaaa ttttagcaga agctaaaaag ctaaacatg ctcaagcacc aaaagaggaa 180

gacaacaaga aaaaatttcg a 201

<210> 24

<211> 67

<212> PRT

<213> Staphylococcus aureus

<400> 24

Ser Val Asn Asn Phe Asn Lys Glu Gln Gln Asn Ala Phe Tyr Glu Ile

1 5 10 15

Leu His Leu Pro Asn Leu Thr Glu Glu Gln Arg Asn Gly Phe Ile Gln

20 25 30

Ser Leu Lys Asp Asp Pro Ser Val Ser Lys Glu Ile Leu Ala Glu Ala

35 40 45

Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys Glu Glu Asp Asn Lys Lys

50 55 60

Lys Phe Arg

65

STERN29.002APC SEQLIST.TXT

<210> 25
<211> 375
<212> DNA
<213> *Staphylococcus aureus*

<400> 25
tcagtgaaaca atttcaacaa agaacaacaa aatgctttct atgaaaatctt gaacatgcct 60
aacttgaacg aagaacaacg caatggttc atccaaagct taaaagatga cccaaagtcaa 120
agtgtcaacc tttagcaga agctaaaaag taaaatgaat ctcaagcacc gaaagctgat 180
aacaatttca acaaagaaca acaaaatgct ttctatgaaa ttttacattt acctaactta 240
actgaagaac aacgtaacgg cttcatccaa agccttaaag acgatccttc agtgagcaaa 300
gaaattttag cagaagctaa aaagctaaac gatgctcaag caccaaaaga ggaagacaac 360
aagaaaaaat ttca 375

<210> 26
<211> 125
<212> PRT
<213> *Staphylococcus aureus*

<400> 26
Ser Val Asn Asn Phe Asn Lys Glu Gln Gln Asn Ala Phe Tyr Glu Ile
1 5 10 15
Leu Asn Met Pro Asn Leu Asn Glu Glu Gln Arg Asn Gly Phe Ile Gln
20 25 30
Ser Leu Lys Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu Ala
35 40 45
Lys Lys Leu Asn Glu Ser Gln Ala Pro Lys Ala Asp Asn Asn Phe Asn
50 55 60
Lys Glu Gln Gln Asn Ala Phe Tyr Glu Ile Leu His Leu Pro Asn Leu
65 70 75 80
Thr Glu Glu Gln Arg Asn Gly Phe Ile Gln Ser Leu Lys Asp Asp Pro
85 90 95
Ser Val Ser Lys Glu Ile Leu Ala Glu Ala Lys Lys Leu Asn Asp Ala
100 105 110
Gln Ala Pro Lys Glu Glu Asp Asn Lys Lys Lys Phe Arg
115 120 125

<210> 27
<211> 177
<212> DNA
<213> *Streptococcus pyogenes*

<400> 27
ggctgtactt acaaattaat ccttaatggc aaaacattga aaggccaaac aactactgaa 60
gctgttgatg ctgctactgc agaaaaagtc ttcaaacaat acgctaacga caacgggttt 120
gacggtaat ggacttacga cgatgcgact aagaccttta cggttaactga aagagaa 177

<210> 28
<211> 59
<212> PRT
<213> *Streptococcus pyogenes*

<400> 28
Gly Cys Thr Tyr Lys Leu Ile Leu Asn Gly Lys Thr Leu Lys Gly Gln
1 5 10 15
Thr Thr Thr Glu Ala Val Asp Ala Ala Thr Ala Glu Lys Val Phe Lys
20 25 30
Gln Tyr Ala Asn Asp Asn Gly Val Asp Gly Glu Trp Thr Tyr Asp Asp
35 40 45
Ala Thr Lys Thr Phe Thr Val Thr Glu Arg Glu
50 55

STERN29.002APC SEQLIST.TXT

<210> 29
<211> 387
<212> DNA
<213> Streptococcus pyogenes

<400> 29
ggctgtactt acaaattaat ccttaatggc aaaacattga aaggccaaac aactactgaa 60
gctgttgatg ctgctactgc agaaaaagtc ttcaacaat acgctaacga caacgggttt 120
gacggtaat ggacttacga cgatcgact aagacctta cagttactga aaaaccagaa 180
gtgatcgatg cgtctgaatt aacaccagcc gtgacaactt acaaacttgt tattaatgg 240
aaaacattga aaggcgaac aactactaaa gcagtagacg cagaaactgc agaaaaagcc 300
ttcaacaat acgctaacga caacgggttt gatgggttt ggacttatga tgatgcact 360
aagaccctta cggttaactga aagagag 387

<210> 30
<211> 129
<212> PRT
<213> Streptococcus pyogenes

<400> 30
Gly Cys Thr Tyr Lys Leu Ile Leu Asn Gly Lys Thr Leu Lys Gly Gln
1 5 10 15
Thr Thr Thr Glu Ala Val Asp Ala Ala Thr Ala Glu Lys Val Phe Lys
20 25 30
Gln Tyr Ala Asn Asp Asn Gly Val Asp Gly Glu Trp Thr Tyr Asp Asp
35 40 45
Ala Thr Lys Thr Phe Thr Val Thr Glu Lys Pro Glu Val Ile Asp Ala
50 55 60
Ser Glu Leu Thr Pro Ala Val Thr Thr Tyr Lys Leu Val Ile Asn Gly
65 70 75 80
Lys Thr Leu Lys Gly Glu Thr Thr Thr Lys Ala Val Asp Ala Glu Thr
85 90 95
Ala Glu Lys Ala Phe Lys Gln Tyr Ala Asn Asp Asn Gly Val Asp Gly
100 105 110
Val Trp Thr Tyr Asp Asp Ala Thr Lys Thr Phe Thr Val Thr Glu Arg
115 120 125
Glu

<210> 31
<211> 39
<212> DNA
<213> Influenza virus

<400> 31
aggtttatac catacgacgt cccggactac gccacaact 39

<210> 32
<211> 13
<212> PRT
<213> Influenza virus

<400> 32
Arg Phe Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Thr Thr
1 5 10

<210> 33
<211> 384
<212> DNA

STERN29.002APC SEQLIST.TXT

<213> Homo sapiens

<400> 33

ctcgagaaaa	gaaatttgg	taatccac	agaatgatca	agttgacgac	aggaaaggaa	60
gccgcactca	gttatggctt	ctacggctgc	cactgtggcg	tgggtggcag	aggatcccc	120
aaggatgcaa	cggatcgctg	ctgtgtca	catgactgtt	gctacaaaacg	tctggagaaa	180
cgtggatgtg	gcaccaaatt	tctgagctac	aagtttagca	actcggggag	cagaatcacc	240
tgtgcaaaac	aggactccctg	cagaagtcaa	ctgtgtgagt	gtgataaggc	tgctgccacc	300
tgttgtcta	gaaacaagac	gacctacaat	aaaaagtacc	agtactattc	caataaacac	360
tgcagaggga	gcactccacg	ttgc				384

<210> 34

<211> 128

<212> PRT

<213> Homo sapiens

<400> 34

Leu	Glu	Lys	Arg	Asn	Leu	Val	Asn	Phe	His	Arg	Met	Ile	Lys	Leu	Thr
1				5					10			15			
Thr	Gly	Lys	Glu	Ala	Ala	Leu	Ser	Tyr	Gly	Phe	Tyr	Gly	Cys	His	Cys
					20			25				30			
Gly	Val	Gly	Gly	Arg	Gly	Ser	Pro	Lys	Asp	Ala	Thr	Asp	Arg	Cys	Cys
					35			40			45				
Val	Thr	His	Asp	Cys	Cys	Tyr	Lys	Arg	Leu	Glu	Lys	Arg	Gly	Cys	Gly
					50			55		60					
Thr	Lys	Phe	Leu	Ser	Tyr	Lys	Phe	Ser	Asn	Ser	Gly	Ser	Arg	Ile	Thr
					65			70		75			80		
Cys	Ala	Lys	Gln	Asp	Ser	Cys	Arg	Ser	Gln	Leu	Cys	Glu	Cys	Asp	Lys
					85			90			95				
Ala	Ala	Ala	Thr	Cys	Phe	Ala	Arg	Asn	Lys	Thr	Thr	Tyr	Asn	Lys	Lys
					100			105			110				
Tyr	Gln	Tyr	Tyr	Ser	Asn	Lys	His	Cys	Arg	Gly	Ser	Thr	Pro	Arg	Cys
					115			120			125				

<210> 35

<211> 90

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic affinity to LPS

<400> 35

ccgatcatca	aacttctcaa	gctgctaaa	ctcctgcgcc	ggaaacttct	caagctgctt	60
aaactcctgc	cggatcaggaa	gtttaagcag				90

<210> 36

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> HA peptide containing linker

<400> 36

Pro	Ile	Ile	Lys	Leu	Leu	Lys	Leu	Leu	Lys	Leu	Leu	Arg	Arg	Lys	Leu
1				5				10				15			
Leu	Lys	Leu	Leu	Lys	Leu	Leu	Pro	Asp	Gln	Glu	Phe	Lys	Gln		
					20			25			30				

<210> 37

STERN29.002APC SEQLIST.TXT

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic peptide

<400> 37

Gly	Ser	Gly	Tyr	Pro	Tyr	Asp	Val	Pro	Asp	Tyr	Ala	Gly	Thr	Gly
1				5				10					15	

<210> 38

<211> 377

<212> PRT

<213> Escherichia coli

<400> 38

Met	Phe	Lys	Thr	Thr	Leu	Cys	Ala	Leu	Leu	Thr	Ala	Ser	Cys	Ser
1					5				10				15	
Thr	Phe	Ala	Ala	Pro	Gln	Gln	Ile	Asn	Asp	Ile	Val	His	Arg	Thr
	20				25				30					Ile
Thr	Pro	Leu	Ile	Glu	Gln	Gln	Lys	Ile	Pro	Gly	Met	Ala	Val	Ala
	35				40				45					Val
Ile	Tyr	Gln	Gly	Lys	Pro	Tyr	Tyr	Phe	Thr	Trp	Gly	Tyr	Ala	Asp
	50				55				60					Ile
Ala	Lys	Lys	Gln	Pro	Val	Thr	Gln	Gln	Thr	Leu	Phe	Glu	Leu	Gly
	65				70				75					Ser
Val	Ser	Lys	Thr	Phe	Thr	Gly	Val	Leu	Gly	Gly	Asp	Ala	Ile	Ala
	85				90				95					Arg
Gly	Glu	Ile	Lys	Leu	Ser	Asp	Pro	Thr	Thr	Lys	Tyr	Trp	Pro	Glu
	100				105				110					Leu
Thr	Ala	Lys	Gln	Trp	Asn	Gly	Ile	Thr	Leu	Leu	His	Leu	Ala	Thr
	115				120				125					Tyr
Thr	Ala	Gly	Gly	Leu	Pro	Leu	Gln	Val	Pro	Asp	Glu	Val	Lys	Ser
	130				135				140					Ser
Ser	Asp	Leu	Leu	Arg	Phe	Tyr	Gln	Asn	Trp	Gln	Pro	Ala	Trp	Ala
	145				150				155					Pro
Gly	Thr	Gln	Arg	Leu	Tyr	Ala	Asn	Ser	Ser	Ile	Gly	Leu	Phe	Gly
	165				170				175					Ala
Leu	Ala	Val	Lys	Pro	Ser	Gly	Leu	Ser	Phe	Glu	Gln	Ala	Met	Gln
	180				185				190					Thr
Arg	Val	Phe	Gln	Pro	Leu	Lys	Leu	Asn	His	Thr	Trp	Ile	Asn	Val
	195				200				205					Pro
Pro	Ala	Glu	Glu	Lys	Asn	Tyr	Ala	Trp	Gly	Tyr	Arg	Glu	Gly	Lys
	210				215				220					Ala
val	His	Val	Ser	Pro	Gly	Ala	Leu	Asp	Ala	Glu	Ala	Tyr	Gly	Val
	225				230				235					Lys
Ser	Thr	Ile	Glu	Asp	Met	Ala	Arg	Trp	Val	Gln	Ser	Asn	Leu	Lys
	245				250				255					Pro
Leu	Asp	Ile	Asn	Glu	Lys	Thr	Leu	Gln	Gln	Gly	Ile	Gln	Leu	Ala
	260				265				270					Gln
Ser	Arg	Tyr	Trp	Gln	Thr	Gly	Asp	Met	Tyr	Gln	Gly	Leu	Gly	Trp
	275				280				285					Glu
Met	Leu	Asp	Trp	Pro	Val	Asn	Pro	Asp	Ser	Ile	Ile	Asn	Gly	Ser
	290				295				300					Asp
Asn	Lys	Ile	Ala	Leu	Ala	Ala	Arg	Pro	Val	Lys	Ala	Ile	Thr	Pro
	305				310				315					Pro
Thr	Pro	Ala	Val	Arg	Ala	Ser	Trp	Val	His	Lys	Thr	Gly	Ala	Thr
	325				325				330					Gly
Gly	Phe	Gly	Ser	Tyr	Val	Ala	Phe	Ile	Pro	Glu	Lys	Glu	Leu	Gly
	340				345				345					Ile
Val	Met	Leu	Ala	Asn	Lys	Asn	Tyr	Pro	Asn	Pro	Ala	Arg	Val	Asp
														Ala

STERN29.002APC SEQLIST.TXT

355	360	365
Ala Trp Gln Ile Leu Asn Ala Leu Gln		
370	375	

<210> 39
<211> 1140
<212> DNA
<213> Escherichia coli

<400> 39

atgttcaaaa	cgacgctctg	cgcattatta	attaccgcct	cttgctccac	atttgctgcc	60
cctcaacaaa	tcaacgatat	tgtgcacatgc	acaattaccc	cgcttataga	gcaacaaaag	120
atccccggta	tggcggtggc	ggtaatttt	cagggtaaac	cttattactt	tacctggggc	180
tatgcggaca	tcgccaaaaaa	gcagccccgtc	acacagcaa	cgttgttga	gttaggttcg	240
gtcagcaaaa	catttactgg	cgtgcttgg	ggcgacgcta	ttgctcgagg	ggaaatcaag	300
ttaagcgatc	ccacaacaaa	atactggcct	gaacttaccg	ctaaacagtg	aatgggatc	360
acactattac	atctcgcaac	ctacactgt	ggcggccgtc	cattgcagg	gccggatgag	420
gtgaaatcc	caagcgactt	gctgcgttc	tatccaaact	ggcgcctgc	atgggctcca	480
ggaacacaaac	gtctgtatgc	caactccagt	atcggtttgt	tcggcgcact	ggctgtgaag	540
ccgtctgggt	ttagtttga	cgaggcgatg	caaactcg	tcttccagcc	actcaaactc	600
aaccatacgt	ggattaaatgt	accggccgca	gaagaaaaaa	attacgcctg	gggatatcgc	660
gaaggttaagg	cagtgcatgt	ttcgcctggg	gcgttagatg	ctgaagctt	tggtgtgaag	720
tcgaccattt	aagatatggc	ccgctgggt	caaagcaatt	taaaacccct	tagtactgat	780
atcaatgaga	aaacgccttca	acaagggata	caactggcac	aatctcgctt	ctggcaaacc	840
ggcgatatgt	atcagggcct	gggctggaa	atgctggact	ggccggtaaa	tcctgacagc	900
atcattaacg	gcagtgcacaa	taaaattgca	ctggcagcac	gccccgtaaa	agcgattacg	960
cccccaactc	ctgcagtcac	cgcatcatgg	gtacataaaa	caggggcgcac	ccgcggattt	1020
ggtagctatg	tgcgtttat	tccagaaaaa	gagctgggt	tcgtgatgt	ggcaaacaaa	1080
aactatccca	atccagcgag	agtcgacgccc	gcctggcaga	ttcttaacgc	tctacagtaa	1140

<210> 40
<211> 256
<212> PRT
<213> Bacillus licheniformis

<400> 40

Met Gln Lys Glu Thr Arg Phe Leu Pro Gly Thr Asn Val Glu Tyr Glu						
1	5	10	15			
Asp Tyr Ser Thr Phe Phe Asp Lys Phe Ser Ala Ser Gly Gly Phe Val						
20	25	30				
Leu Phe Asn Ser Asn Arg Lys Lys Tyr Thr Ile Tyr Asn Arg Lys Glu						
35	40	45				
Ser Thr Ser Arg Phe Ala Pro Ala Ser Thr Tyr Lys Val Phe Ser Ala						
50	55	60				
Leu Leu Ala Leu Glu Ser Gly Ile Ile Thr Lys Asn Asp Ser His Met						
65	70	75	80			
Thr Trp Asp Gly Thr Gln Tyr Pro Tyr Lys Glu Trp Asn Gln Asp Gln						
85	90	95				
Asp Leu Phe Ser Ala Met Ser Ser Thr Thr Trp Tyr Phe Gln Lys						
100	105	110				
Leu Asp Arg Gln Ile Gly Glu Asp His Leu Arg His Tyr Leu Lys Ser						
115	120	125				
Ile His Tyr Gly Asn Glu Asp Phe Ser Val Pro Ala Asp Tyr Trp Leu						
130	135	140				
Asp Gly Ser Leu Gln Ile Ser Pro Leu Glu Gln Val Asn Ile Leu Lys						
145	150	155	160			
Lys Phe Tyr Asp Asn Glu Phe Asp Phe Lys Gln Ser Asn Ile Glu Thr						
165	170	175				
Val Lys Asp Ser Ile Arg Leu Glu Glu Ser Asn Gly Arg Val Leu Ser						
180	185	190				
Gly Lys Thr Gly Thr Ser Val Ile Asn Gly Glu Leu His Ala Gly Trp						

STERN29.002APC SEQLIST.TXT

195	200	205
Phe Ile Gly Tyr Val Glu	Thr Ala Asp Asn Thr	Phe Phe Ala Val
210	215	220
His Ile Gln Gly Glu Lys	Arg Ala Ala Gly Ser	Ser Ala Ala Glu Ile
225	230	235
Ala Leu Ser Ile Leu Asp Lys Lys Gly	Ile Tyr Pro Ser Val	Ser Arg
245	250	255

<210> 41

<211> 768

<212> DNA

<213> Bacillus licheniformis

<400> 41

atgcaaaaag aaacacgctt tttaccggc accaatgttag aatacgaaga ttacagcact 60
 tttttgtata aattttcagc ctcaggggc tttgtcctgt ttaattctaa tagaaaaaag 120
 tatacaatata caaataggaa agaaagcacc tccagattcg cacctgcttc cacctacaag 180
 gtgttagcg cattgctgc actgaaatcc gggatcatca cgaagaacgca ctctcacatg 240
 acttggtatcg gactcaataa tccgtataaa gaatggaaatc aagaccaggaa ttatttctct 300
 gcgtatcgac gctccacaaat atggatTTT caaaaatgg accggcaaatt tggggaggat 360
 catttacgtc attatctcaa atctatacat tatggaaatg aggattttc agtccccggcc 420
 gattattggc tggatggctc tcttcaaatt tctccacttg aacaggtcaa tatattaaaa 480
 aagtttatg ataacgaatt tgattttaaa cagtctaata ttgaaactgt gaaagattcg 540
 atacgttag aagaatcaaa tggcagggtt ttatccgtaa aaccggaaac ctcggtaatc 600
 aacgggaaac tccatgccgg ttggtttatac gggatgttag aaactgccga taatacttt 660
 ttcttgctg ttcattttca aggtaaaaa cgggctccgc gaagctccgc tgccgaaatt 720
 gcactttcca ttttagataa aaaaggatt tatccctccg tttcccga 768

<210> 42

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> BlaP alpha helix 8

<400> 42

Ala Arg Ala Leu Ala Thr Ser Leu Gln Ala Phe Ala		
1	5	10

<210> 43

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> BlaP alpha helix 9

<400> 43

Ser Glu Lys Arg Glu Leu Leu Ile Asp Trp Met Lys		
1	5	10

<210> 44

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> TEM-1 beta-lactamase alpha helix 8

STERN29.002APC SEQLIST.TXT

<400> 44
Pro Ala Ala Met Ala Thr Thr Leu Arg Lys Leu Leu
1 5 10

<210> 45
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> TEM-1 beta-lactamase alpha helix 9

<400> 45
Leu Ala Ser Arg Gln Gln Leu Ile Asp Trp Met Glu
1 5 10

<210> 46
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> AmpC alpha helix 8

<400> 46
Ile Glu Asp Met Ala Arg Trp Val Gln Ser Asn Leu
1 5 10

<210> 47
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> AmpC alpha helix 9

<400> 47
Lys Thr Leu Gln Gln Gly Ile Gln Leu Ala
1 5 10

<210> 48
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> restriction cassette

<400> 48
Leu Leu Thr Gly Glu Leu Leu Thr Leu Ala
1 5 10

<210> 49
<211> 30
<212> DNA
<213> Artificial Sequence

<220>

STERN29.002APC SEQLIST.TXT

<223> restriction cassette

<400> 49

ctattaactg gcgaactact tactctagct

30

<210> 50

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> restriction cassette

<400> 50

Leu Leu Thr Gly Val Pro Leu Thr Gly Thr Leu Ala
1 5 10

<210> 51

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> restriction cassette

<400> 51

ctattaactg gggtaaccctt aactggcact ctagct

36

<210> 52

<211> 24

<212> PRT

<213> Artificial Sequence

<220>

<223> restriction cassette

<400> 52

Leu Leu Thr Gly Val Pro Pro Gly Leu Gln Leu Glu Leu Lys Pro Gly
1 5 10 15

Arg Tyr Pro Leu Thr Gly Glu Leu
20

<210> 53

<211> 72

<212> DNA

<213> Artificial Sequence

<220>

<223> restriction cassette

<400> 53

ctattaactg gggtaaccgc cgggctgcag ctcgagctta agcccgccgc gtacccctta 60
actggcgaac ta 72

<210> 54

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> restriction cassette

STERN29.002APC SEQLIST.TXT

<400> 54
Leu Leu Thr Gly Val Pro Pro Gly Arg Tyr Pro Leu Thr Gly Glu Leu
1 5 10 15

<210> 55
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> restriction cassette

<400> 55 ctattaaactg gggtaaccgcc cgggcggtag cccctaactg gcgaacta 48

<210> 56
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> restriction cassette

<400> 56 Ala Leu Glu Asp Lys Leu Pro Ser Glu Lys
1 5 10

<210> 57
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> restriction cassette

<400> 57 gctcttgaag ataaacttcc aagtaaaaaa 30

<210> 58
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> restriction cassette

<400> 58 Ala Leu Glu Asp Pro Gly Lys Leu Pro Ser Glu Lys
1 5 10

<210> 59
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> restriction cassette

<400> 59

STERN29.002APC SEQLIST.TXT
gctcttgaag atcccggaa acttccaagt gaaaaa

36

<210> 60
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> restriction cassette

<400> 60
Val Glu Asp Gly Glu Lys Ala Ala Leu Ala
1 5 10

<210> 61
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> restriction cassette

<400> 61
gtcgaggacg gcgagaaggc cgccctcgcg

30

<210> 62
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> restriction cassette

<400> 62
Val Glu Asp Gly Glu Asp Ile Lys Ala Ala Leu Ala
1 5 10

<210> 63
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> restriction cassette

<400> 63
gtcgaggacg gcgaggatat caaggccgcc ctcgcg

36

<210> 64
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> insertion site

<400> 64
Ala Leu Glu Asp Lys Leu Pro Ser Glu Lys
1 5 10

STERN29.002APC SEQLIST.TXT

<210> 65
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> insertion site

<400> 65
gctcttgaag ataaaacttcc aagtgaaaaa 30

<210> 66
<211> 25
<212> PRT
<213> Artificial Sequence

<220>
<223> insertion site

<400> 66
Ala Leu Glu Asp Pro Arg Phe Tyr Pro Tyr Asp Val Pro Asp Tyr Ala
1 5 10 15
Thr Thr Gly Lys Leu Pro Ser Glu Lys
20 25

<210> 67
<211> 75
<212> DNA
<213> Artificial Sequence

<220>
<223> insertion site

<400> 67
gctcttgaag atcccaggtt ttatccatac gacgtcccg actacgccac aactggaaa 60
cttccaagtg aaaaa 75

<210> 68
<211> 115
<212> PRT
<213> Homo sapiens

<400> 68
Asn Leu Val Asn Phe His Arg Met Ile Lys Leu Thr Thr Gly Lys Glu
1 5 10 15
Ala Ala Leu Ser Tyr Gly Phe Tyr Gly Cys His Cys Gly Val Gly Gly
20 25 30
Arg Gly Ser Pro Lys Asp Ala Thr Asp Arg Cys Cys Val Thr His Asp
35 40 45
Cys Cys Tyr Lys Arg Leu Glu Lys Arg Gly Cys Gly Thr Lys Phe Leu
50 55 60
Ser Tyr Lys Phe Ser Asn Ser Gly Ser Arg Ile Thr Cys Ala Lys Gln
65 70 75 80
Asp Ser Cys Arg Ser Gln Leu Cys Glu Cys Asp Lys Ala Ala Thr
85 90 95
Cys Phe Ala Arg Asn Lys Thr Thr Tyr Asn Lys Lys Tyr Gln Tyr Tyr
100 105 110
Ser Asn Lys
115